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Libby Asbestos Site

Libby, Montana

Initial Soils Data Gap Sample Collection
Operable Unit 5 - Former Stimson
Lumber Mill Site

August 28, 2007

Draft Sampling &
Analysis Plan Addendum

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Sampling and Analysis Plan Addendum
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Libby Asbestos Site
Libby, Montana

August 28, 2007

Contract No. DTRT57-05-D-30109

Task Order No. 00006

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Region 8
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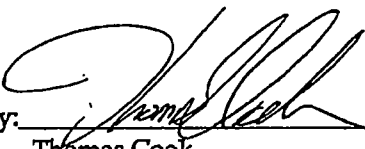
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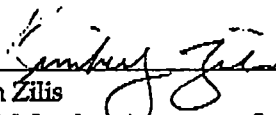
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Acronyms

BNSF	Burlington Northern Santa Fe
CAR	Corrective Action Request
CDM	CDM Federal Programs Corporation
COC	chain-of-custody
DSR	data summary report
DQOs	data quality objectives
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
FSDS	field sample data sheet
FSP	field sampling plan
GPS	global positioning system
HASP	health and safety plan
IDW	investigation-derived waste
KDC	Kootenai Development Corporation
LA	Libby amphibole asbestos
LCPA	Lincoln County Port Authority
LTU	land treatment unit
NPL	National Priorities List
OU	operable unit
PM	project manager
PPE	personal protective equipment
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RI	remedial investigation
ROD	record of decision
RPM	remedial project manager
SAP	sampling and analysis plan
site	former Stimson Lumber Mill site
SOP	standard operating procedure
SWQAPP	site wide quality assurance project plan
USGS	United States Geological Survey
Volpe Center	John A. Volpe National Transportation Systems Center

Section 1

Introduction

This document serves as the sampling and analysis plan (SAP) addendum to support sample collection required as determined by the initial soils data gap analysis performed for the former Stimson Lumber Mill site (site), operable unit (OU) 5, in Libby, Montana. The initial soil data gap analysis memorandum (CDM 2007a) is provided in Appendix A.

As additional evaluations of data specific to OU5 are completed, additional sampling efforts may be required. If additional sampling efforts are required, SAPs specific to the efforts will be generated prior to sample collection.

This SAP is an addendum to the *Final SAP, Remedial Investigation (RI), Libby Asbestos Site, Operable Unit 4* (CDM 2003), hereafter referred to as the RI SAP (CDM 2003). All field procedures described in the RI SAP (CDM 2003) will be used to perform the investigations described in this SAP Addendum unless detailed in the following sections.

The RI SAP (CDM 2003) and this SAP Addendum contain all the elements required for both a field sampling plan (FSP) and quality assurance project plan (QAPP). The RI SAP (CDM 2003) and this SAP Addendum were developed in accordance with the *Environmental Protection Agency (EPA) Requirements for Quality Assurance Project Plans*, EPA QA/R-5 (EPA 2001), and the *Guidance on Systematic Planning Using the Data Quality Objectives Process*, EPA QA/G4 (EPA 2006a). This SAP addendum also incorporates all requirements as specified in the Site-Wide QAPP (SWQAPP) for the Libby Asbestos Project (CDM 2007b).

The purpose of this SAP Addendum is to describe the sampling objectives, locations, measurement methods, and data quality objectives (DQOs) for the initial soil data gap sampling program. The SAP Addendum is organized as follows:

- Section 1 - Introduction
- Section 2 - Site Background
- Section 3 - DQOs
- Section 4 - Sampling Program
- Section 5 - Laboratory Analysis and Requirements
- Section 6 - Assessment and Oversight
- Section 7 - Data Validation and Usability
- Section 8 - References

Appendices

- Appendix A OU5 Final Initial Soils Data Gap Analysis Memorandum
- Appendix B Standard Operating Procedures (SOPs) and Site-Specific

	Guidance Documents
Appendix C	Health and Safety Plan (HASP)
Appendix D	Reflectance Spectroscopy Screening for Asbestos in Soil
Appendix E	Field Sample Data Sheets (FSDS)
Appendix F	Libby Asbestos Project Record of Modification Form

1.1 Objectives

This section defines the objectives of the initial soils data gap sampling program and the intended use of data.

As determined by previous investigations conducted at the Libby Superfund Site, Libby amphibole asbestos (LA) is present in multiple environmental media in Libby including: indoor air, outdoor ambient air, indoor dust, vermiculite insulation, and soils. As a result, residents of Libby may be exposed to LA, and these exposures may pose a risk of cancer and/or non-cancer effects.

The existing data set for OU5, presented in the OU5 Data Summary Report (DSR) (CDM 2007c), indicated data gaps related to soils at the site exist in the following locations:

- Libby Groundwater Superfund Site
- Former nursery waste bark piles and soil underneath
- Banks of Libby Creek
- Known areas of LA containing dust and/or soil
 - Former nursery shed
 - Former nursery activity-based sampling areas
 - Former guard station at Libby Creek
 - Diesel pump house
 - Soil sample location CS-09294

The objective of the sampling program described in this SAP Addendum is to collect data of sufficient representativeness and quality to evaluate LA asbestos content and presence/absence of surficial vermiculite specific to the areas listed above.

1.2 Project Schedule and Deliverables

Sampling is expected to be conducted between September and November 2007. Once the initial data set, collected as described in this SAP Addendum, is evaluated by the

EPA risk assessment and management teams, additional data collection may be deemed necessary to support final decision-making specific to OU5.

Section 2 Site Background

This section describes site location, history, and information regarding the site.

2.1 Site Location

The Libby Superfund Site has been subdivided into seven OUs to facilitate a phased approach to cleanup (Figure 2-1):

- OU1. The former export plant is defined geographically by the property boundary of the parcel of land that included the former export plant.
- OU2. The exact geographic area of OU2 has not yet been defined, but includes areas impacted by contamination released from the former Screening Plant. These areas include the former Screening Plant, the Flyway property, the Highway 37 right-of-way adjacent to the former Screening Plant and/or Rainy Creek Road, the Wise property, and the Kootenai Development Corporation (KDC) Bluffs. The KDC Bluffs area is located directly across the Kootenai River from the former Screening Plant.
- OU3. The mine OU includes the former vermiculite mine and the geographic area (including ponds) surrounding the former vermiculite mine that has been impacted by releases from the mine, including Rainy Creek and the Kootenai River. Rainy Creek Road is also included in OU3. The exact geographic area of OU3 has not yet been defined but will be based primarily upon the extent of contamination associated with releases from the former vermiculite mine.
- OU4. OU4 is defined as residential, commercial, industrial (not associated with former W.R. Grace operations), and public properties, including schools and parks in and around the City of Libby, or those which have received material from the mine not associated with W.R. Grace operations. Highway transportation corridors such as Highway 37 (including the five miles of Highway 37 beginning at the intersection of Rainy Creek Road and extending into the town of Libby) are also included in OU4. Portions of Highway 37 associated with the Screening Plant are addressed in OU2 and are therefore excluded from OU4.
- OU5. The former Stimson Lumber Mill is defined geographically by the parcel of land that included the former Stimson Mill.
- OU6. The rail yard owned and operated by the Burlington Northern and Santa Fe Railroad (BNSF) is defined geographically by the BNSF property boundaries and extent of contamination associated with the rail yard. Railroad transportation corridors are also included in this OU.

- OU7. The Troy OU includes all residential, commercial, and public properties within the town of Troy.

OU 5 is situated in the eastern section of Libby, Montana on U.S. Highway 2 South (Figure 2-2). The boundary of OU5 is defined geographically by the parcel of land that included the former Stimson Lumber Company. The eastern boundary of OU 5 follows the western high bank of Libby Creek, and the creek is included in OU 4. The property is approximately 400 acres in size and is occupied by various buildings, processing plants, storage sheds including the central maintenance building, plywood plant, finger joint building, truck barn, office, and others.

Within the boundary of OU 5 exists the Libby Groundwater Superfund Site (Figure 2-3). The Libby Groundwater Superfund Site was placed on the National Priorities List (NPL) in September 1983 due to groundwater contamination resulting from wood preservative processing. Ownership of the remediation units related to the Libby Groundwater Superfund Site has been retained by International Paper. Two Records of Decision (RODs) direct three stages of work agreed to by Champion: an initial action and two long-term phases. The latter phases focus on cleanup of the groundwater, and cleanup of the soil, lower aquifer and source control. Groundwater and soil remediation efforts are currently ongoing.

2.2 Site History

The timber industry was a major foundation of Libby's economy for much of the city's history. The first sawmill was built in the winter of 1891-1892 near the present day downtown Libby. In 1906, the Dawson Lumber Company built a modern saw mill bringing workers and their families to the city in greater numbers. As early as 1914, parcels were bought and sold from private owners to companies such as the Dawson Lumber Company, Libby Lumber Company, and St. Regis Paper Company.

The facility was known as the J. Neils Lumber Company when wood treating began in approximately 1946. St. Regis Corporation purchased the company and facility in 1957 and continued to treat wood until 1969, when the wood treating plant was disassembled. In 1985 Champion International Corporation bought the facility; Champion later sold the mill to Stimson Lumber Company in 1993 and International Paper purchased Champion in 2000. Historical information regarding the Stimson property suggests that vermiculite products were used at, or transported to, the property at various times and at various locations. Additionally, vermiculite insulation was installed in buildings which were used during daily plant operations. It is believed that these products contain varying levels of LA.

In 1993, the Stimson Lumber Company purchased all of the parcels owned by the various private owners to form what is now recognized as the Site boundary. The Site is bounded to the north by the Kootenai River, to the west by Highway 2, to the east by the Kootenai National Forest and to the south by Gruber Road. The parcel of land containing Millwork West, a local lumber distributor, was sold by Stimson to private industries in 1998 and is considered part of OU4.

In 2003 the majority of lumber production activities at the Stimson Lumber Company ceased and the mill property was bought by the Lincoln County Port Authority (LCPA) and subsequently transferred ownership to the Kootenai Business Park Industrial District which is currently in the process of redeveloping the site. In 2005, LCPA sold the land to the Kootenai Business Park Industrial District. Details regarding the current use of the site can be found in the OU5 DSR (CDM 2007c).

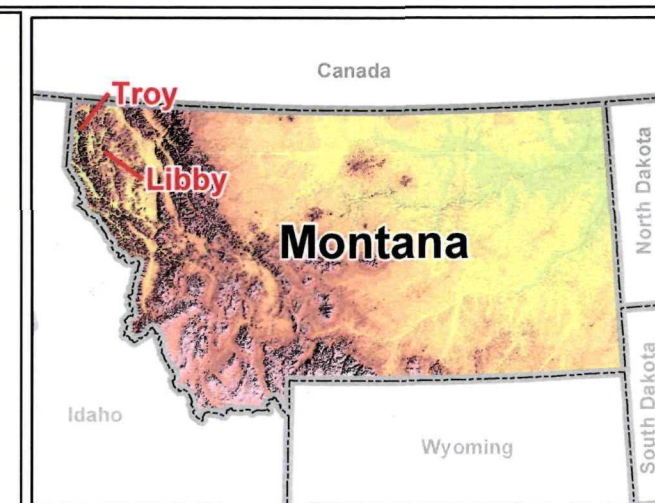
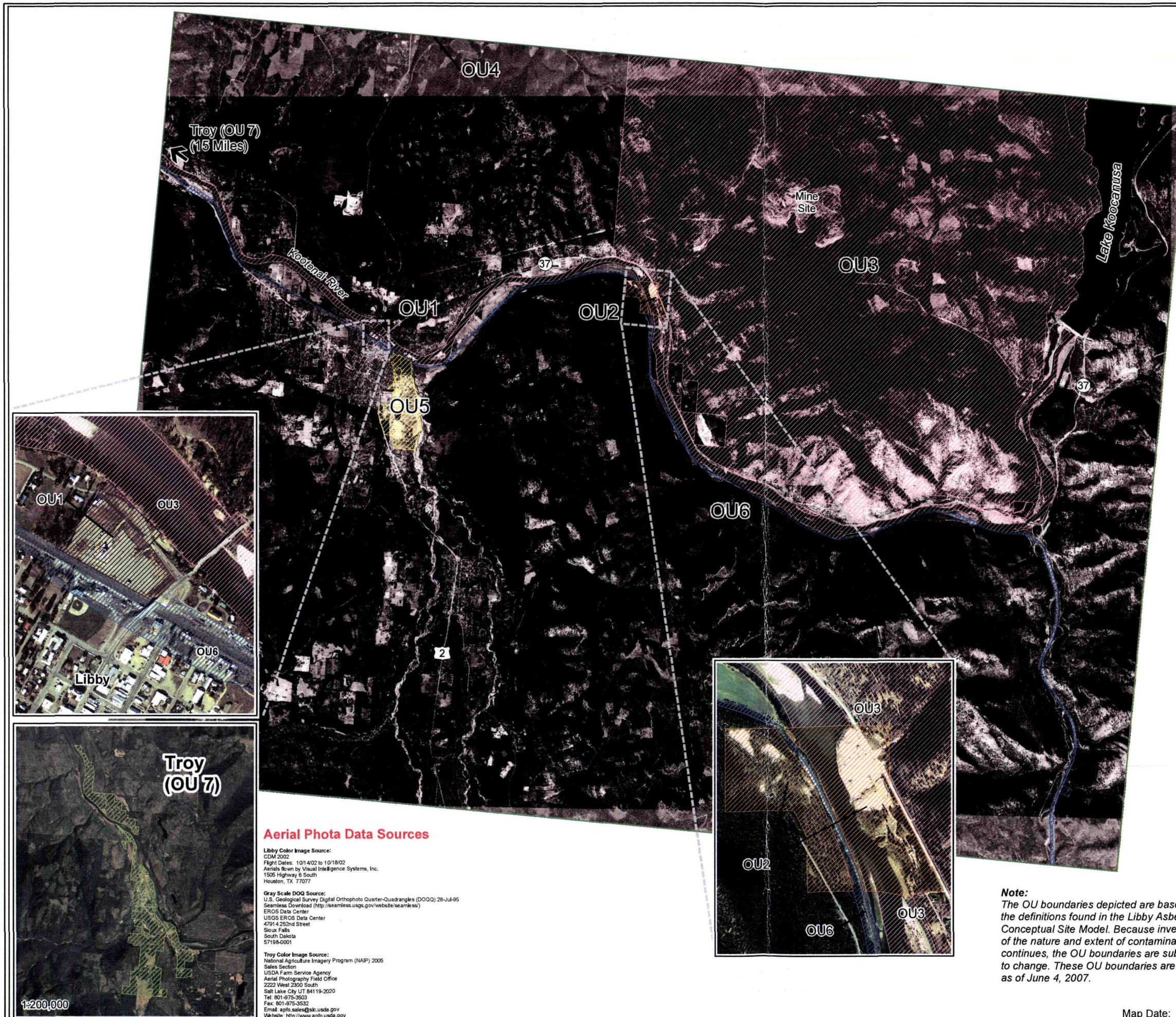
Since 1999, EPA has conducted sampling and cleanup activities to address highly contaminated areas in the Libby Valley. The EPA investigation was initiated in response to published media articles that detailed extensive asbestos-related health problems in the Libby population. While at first the situation was thought to be limited to those with direct or indirect occupational exposures, it soon became clear that there were multiple exposure pathways and many persons with no link to mining-related activities were affected. The site was listed on the Superfund NPL in February 2002.

2.3 Summary of Previous Actions

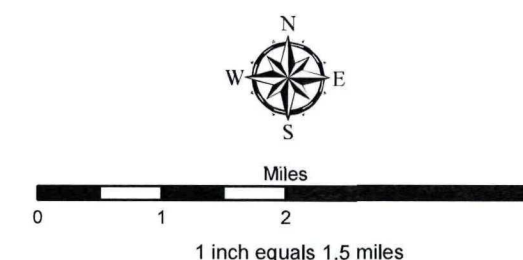
Multiple investigation, pre-removal, and removal events have occurred at the site to date and are summarized in the following table:

Location	Date	Description
Characterization and Investigation Activities		
Former Nursery	2002, May	Microvacuum sampling in former nursery shed
Site-Wide	2002, September	Personal air, stationary air, dust
Bicycle motocross track	2004, May	Soil sampling
Central Maintenance Building	2004, May	Pre-Design Inspection (soil, dust, and bulk sampling)
Proposed Demolition Derby Area	2004, July	Soil Sampling
Former Nursery	2005, June	Activity-based sampling
Removal Actions		
Dry Kiln Tunnel	2002, December	Removal of pipe insulation
Truck Shop	2003, June	Removal of vermiculite insulation from walls
Plywood Dryers	2003, August	Removal of vermiculite insulation from walls, floors, and ceilings
Plywood Plant	2003, August	Removal of pipe insulation of northwest corner
Screening Building	2003, August	Removal of cement asbestos siding and roofing
Finger Jointer Lunch Room	2005, February	Removal of vermiculite insulation
Central Maintenance Building	2005	Removal of vermiculite insulation

The reader is referred to the OU5 DSR (CDM 2007c) for details regarding the actions listed above.



- Legend**
- OU1 - Former Export Plant
 - OU2 - Former Screening Plant, Flyway Property, Highway 37 right-of-way adjacent to the Screening Plant, and the KDC Bluffs
 - OU3 - Mine site area, Kootenai River, Rainy Creek and Rainy Creek Road
 - OU4 - Residential, Commercial, Industrial Properties including Schools and Parks
 - OU5 - Former Stimson Lumber Mill
 - OU6 - BNSF Railyard, Tracks, and Right -of-way
 - OU7 - Troy



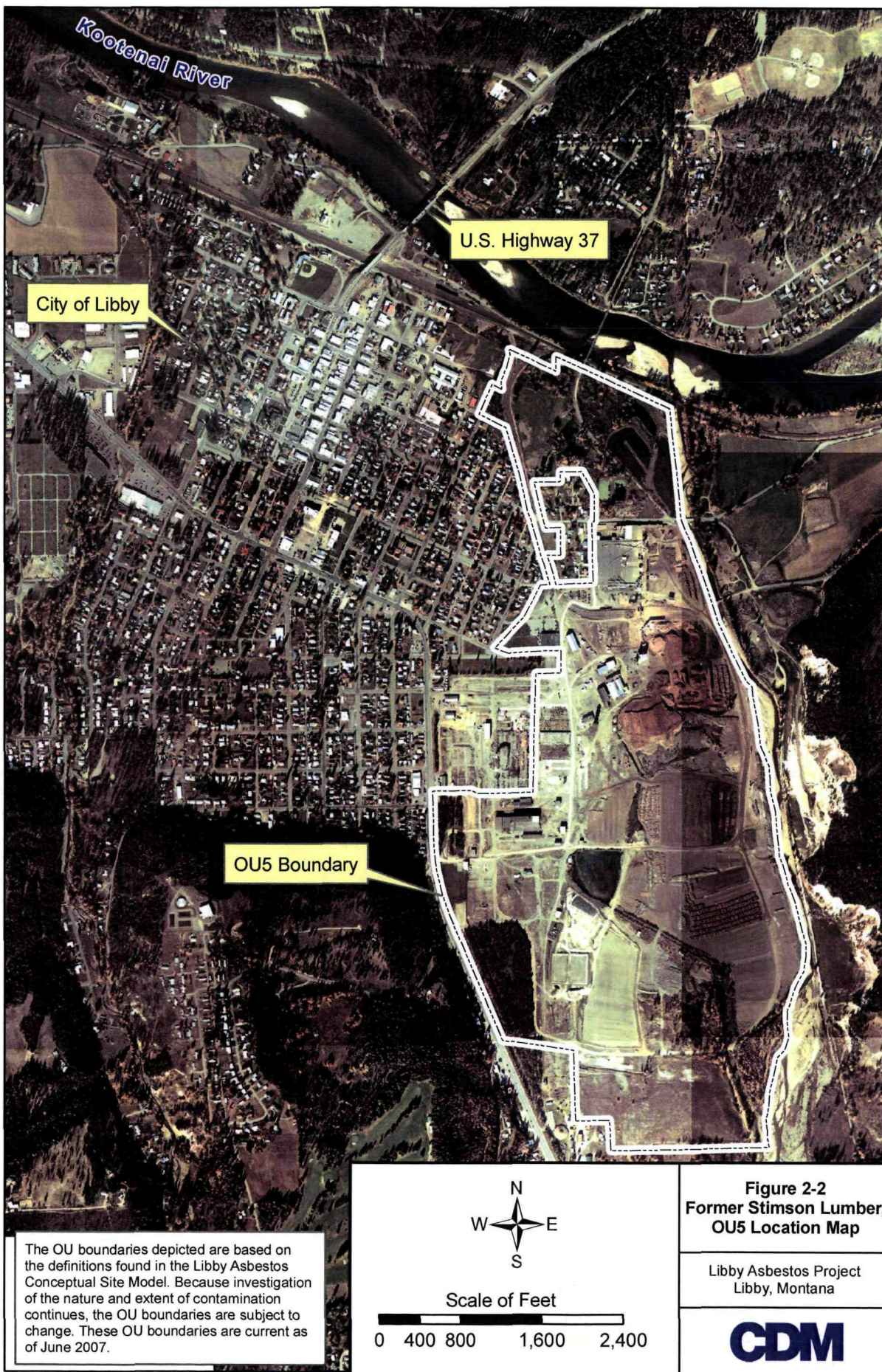
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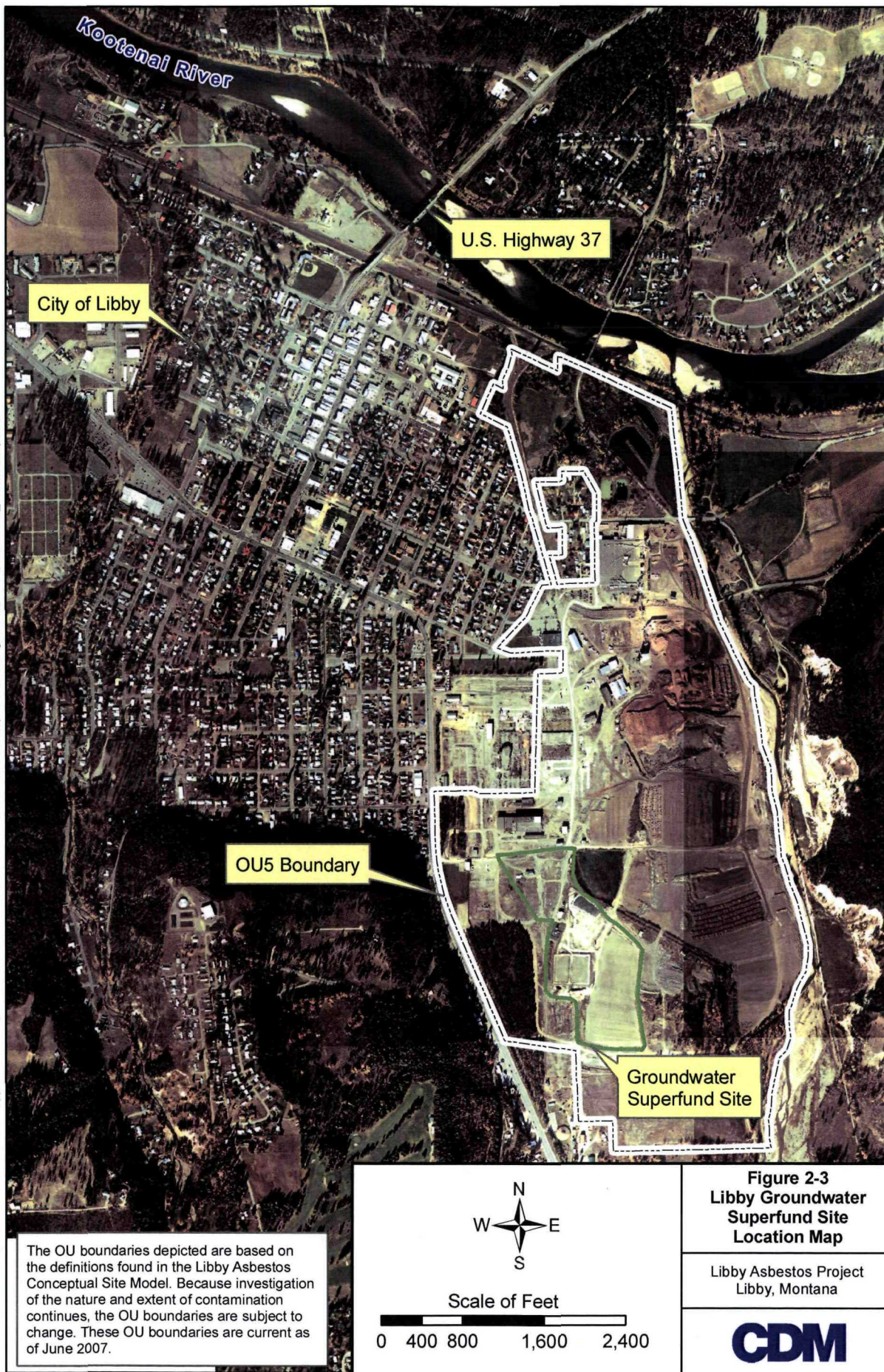
Figure 2-1

Operable Unit (OU) Boundaries
 Libby Asbestos Site
 Libby, Montana

CDM

Map Date: 8/7/2007





Section 3

Data Quality Objectives

The DQO process, based on scientific methods, is a series of planning steps that are designed to ensure that the type, quantity, and quality of environmental data used in decision-making are appropriate for the intended purpose. The reader is referred to Section 3 of the RI SAP (CDM 2003) for DQOs related to the activities described in the SAP Addendum.

Section 4

Sampling Program

This section summarizes field activities that will be performed during the initial soils data gap sampling efforts specific to OU5. This section also provides brief summaries of SOPs and additional site-specific detail that may not be discussed in the SOPs. For additional information, field personnel will refer to the SOPs included in Appendix B. The site-specific site health and safety plan (HASP) (Appendix C) and the comprehensive site health and safety program (CDM 2006) should be consulted to determine health and safety protocols for performing site work.

All activities will be performed in accordance with this SAP Addendum. Field personnel will also refer to the SWQAPP (CDM 2007b) sections listed below for details regarding requirements referenced in this SAP:

SWQAPP Section Number	Section Title
3.1	Sample Collection
3.2.1	Drafting and Approval of Governing Documents
3.2.2	Field Planning Meetings
3.2.3	Field Team Training Requirements
3.2.4	Field Logbooks
3.2.5	FSDSs
3.2.6	Investigation Specific Field Forms
3.2.7	Photographic Documentation
3.2.8	Global Positioning System (GPS) Point Collection
3.2.9	Field Equipment Maintenance
3.2.10	Handling Investigation Derived Waste (IDW)
3.2.11	Field Sample Custody and Documentation
3.2.12	Sample Packaging and Shipping
3.2.13	Modification Forms
3.2.14.1	Field Surveillances
3.2.14.2	Field Audits

The SOPs and site-specific procedures included in Appendix B are listed below:

- Sample Custody (Modified CDM SOP 1-2)
- Packaging and Shipping of Environmental Samples (Modified CDM SOP 2-1)

- Guide to Handling of IDW (Modified SOP 2-2)
- Field Logbook Content and Control (Modified CDM SOP 4-1)
- Photographic Documentation of Field Activities (Modified CDM SOP 4-2)
- Field Equipment Decontamination at Nonradioactive Sites
(Modified CDM SOP 4-5)
- Control of Measurement and Test Equipment (CDM SOP 5-1)
- Site-Specific SOP for Soil Sample Collection (CDM-LIBBY-05, Revision 2)
- Site-Specific SOP for Semi-Quantitative Visual Estimation of Vermiculite in Soil
(CDM-LIBBY-06, Revision 1)
- Site-Specific SOP for GPS Coordinate Collection and Handling (CDM-LIBBY-09,
Revision 0)

The following sections are a summary of field activities that will be performed during the performance of the sampling investigation efforts described in this SAP Addendum.

4.1 Pre-Sampling Activities

Prior to beginning field activities, a field planning meeting will be conducted, any required trainings will be conducted, and an inventory of equipment and supplies will be performed to determine procurements needs. The following sections discuss these pre-sampling activities.

4.1.1 Field Planning Meeting

A field planning meeting will be conducted in accordance with the procedures detailed in Section 3.2.2 of the SWQAPP (CDM 2007b).

4.1.2 Training Requirements

Training requirements described in Section 3.2.3 of the SWQAPP (CDM 2007b) will apply to personnel conducting sample collection activities described in this SAP Addendum.

4.1.3 Inventory and Procurement of Equipment and Supplies

The following equipment will be required for sampling activities, and any required equipment not already contained in the field equipment supply inventory will be procured prior to initiation of sampling activities:

- Field logbooks
- Indelible ink pens
- Digital camera

- Sample paperwork and sample tags/labels
- Custody seals
- Zipper-top baggies
- Soil sampling equipment
- Personal protective equipment (PPE) as required by the HASP

4.2 Soil Sample Collection

This section describes the investigation efforts that will be conducted to meet the objectives of this SAP. A summary of all sampling activities is also shown in Table 4-1. All soil sampling efforts will be conducted in accordance with the current version of CDM-LIBBY-05 and evaluations for the presence of visible vermiculite using the current version of CDM-LIBBY-06, both SOPs are provided in Appendix B.

4.2.1 Libby Groundwater Superfund Site

Investigations at the Libby Groundwater Superfund Site will include:

- Evaluation for the presence of visible vermiculite in surface soil throughout the area
- Surface soil sampling in all areas except land treatment unit (LTU) cell 1, LTU cell 2, and the expanded landfarm area
- Subsurface soil sampling and an evaluation for the presence of visible vermiculite in LTU cell 1, LTU cell 2, and the expanded landfarm area

Surface soil sampling will consist of one surface 30-point composite soil sample collected from each of the 100 feet by 100 feet grids shown in Figure 4-1, except in the areas of LTU cell 1, LTU cell 2, and the expanded landfarm area. One visual estimation point inspection (PI) will be completed for each 100 feet by 100 feet grid.

In addition, subsurface sampling will be completed in LTU cell 1, LTU cell 2, and the expanded landfarm area to determine the status of LA concentrations and visual estimations from the interval of soil 18 to 24-inches below the current ground surface. One subsurface 30-point composite soil sample will be collected from each of the 100 feet by 100 feet grids shown in Figure 4-1. One visual estimation PI will be completed for each each 100 feet by 100 feet grid.

4.2.2 Former Nursery Area

Past soil sampling efforts were restricted to exposed ground surfaces in this area due to the existence of three large waste bark debris piles, covering approximately 93,000 square feet (Figure 4-2). The piles contain material including bark, soil, logs, and rocks that were scraped from the surface of the log storage yard over a period of two years. The estimated dimensions for each of the piles are shown below:

- Pile #1 – 275 feet north to south, 300 feet east to west, and 20 feet high; containing approximately 61,000 cubic yards of material

- Pile #2 – 115 feet north to south, 75 feet east to west, and 15 feet high; containing approximately 4,800 cubic yards of material
- Pile #3 – 35 feet north to south, 45 feet east to west, and 20 feet high; containing approximately 1,200 cubic yards of material

To determine the removal options and potential future use of the waste bark debris piles, the material in the piles will be sampled and analyzed for a presence/absence of LA using x-ray diffraction.

Using an excavator, test pits will be excavated from the surface to soil surface or a depth of 8 to 10 feet, whichever is encountered first, depending on the depth the excavator can safely reach. One test pit will be excavated from the center of piles #2 and #3. Test pits for pile #1 will be excavated on an approximate grid system with one pit excavated for every 10,000 square feet (100 feet x 100 feet grid system), resulting in approximately 8 test pits. Figure 4-2 indicates proposed locations for the waste bark test pits. Actual locations may be adjusted in the field.

For each test pit excavated, one reading will be taken from material at the top, middle, and bottom of the excavation – 3 readings per test pit. No sampling personnel will enter the excavation. Instead the excavator operator will place the bucket of the excavator at a location sampling personnel can access the bucket for the purpose of conducting the analysis.

As part of this activity, personal air samples will be collected from the excavator operator and the operator of the portable IR equipment. These samples will be collected in accordance with the *Final SAP for Activity-Based Outdoor Air Exposures, Operable Unit 4, Libby, Montana, Superfund Site* (SRC and CDM 2007) and all approved modifications.

If the waste bark piles require removal, soil sampling and visual vermiculite evaluation will be conducted in the areas that are currently under the piles. One 30-point composite surface soil sample will be collected from each 100 feet by 100 feet grid covering the 93,000 square feet currently occupied by the waste bark debris piles.

4.2.3 Banks of Libby Creek

The portion of Libby Creek that flows along the eastern boundary of the site will be visually assessed for the presence of vermiculite and other mine related materials similar to the investigation conducted along Flower Creek in August of 2007 using the following techniques:

- A visual inspection will be conducted along all the exposed creek bed and adjacent bank areas to determine the extent of vermiculite and/or suspect LA-containing rocks. To the extent possible, visual inspections will be conducted in accordance with CDM-LIBBY-06, Revision 1. However, due to the nature of the material being inspected, a substantial portion of this document will not be applicable. The overall concepts of visual inspections and nomenclature outlined in Section 4.3 will be utilized.

- The following information will be collected/ documented at each location where vermiculite or suspect material is observed:
 - Location of any visible material via GPS measurements
 - A field sketch, which will include the lateral extent of contamination. A cross-section of the creek will also be completed at each of these locations and will include an estimate of the current water level.
 - A brief description of the extent of contamination will be provided in a field logbook, along with other required information.
 - Photographs will be collected to document existing site conditions.

In addition, one 30-point composite surface sample will be collected from each side of the bank for every 400 linear feet and a visual estimation inspection completed for each sample aliquot. The sample will be collected from halfway between the top of the bank and the water level at the time of sample collection. Using this sampling approach will result in the collection of approximately 36 surface soil samples.

Sampling locations may be omitted by the field team if the surface material is not composed of soil (i.e., large pebble, cobbles, or boulders).

4.2.4 Storm Water Containment and Waste Water Lagoon Area

The previously unsampled area is bounded by rail lines on to the west and north, Libby Creek to the east and Fifth Street Extension to the South (Figure 4-3). Investigations in this area will include soil sampling and an evaluation for the presence of visible vermiculite. One 30-point composite soil sample will be collected from each of the 100 feet by 100 feet grids shown in Figure 4-3. One visual estimation point inspection (PI) will be completed at the center of each 100 by 100 foot grid.

4.2.5 Wood Chip Piles

Several wood bark piles to the south and east of the former power house, Figure 4-4, are currently being distributed to local residents for use as landscaping material. EPA will use the most recent version of for a presence/absence of LA using the most recent version of ISSI-LIBBY-02, *Reflectance Spectroscopy Screening for Asbestos in Soils* (United States Geological Survey [USGS] 2002) (Appendix D) here after referred to as the portable infrared (IR) method.

Similar to the sampling planned for the waste bark piles in the former nursery area, test pits will be excavated from the surface to a depth of 8 to 10 feet depending on the depth the excavator can safely reach. One test pit will be excavated on a grid system with one pit excavated for every 10,000 square feet (100 feet x 100 feet grid system) (Figure 4-4) Actual locations may be adjusted in the field as determined by the current location and volume of the piles.

For each test pit excavated, one reading will be taken from material at the top, middle, and bottom of the excavation – 3 readings per test pit. No sampling personnel will enter the excavation. Instead the excavator operator will place the bucket of the excavator at a location sampling personnel can access the bucket for the purpose of conducting the analysis.

As part of this activity, personal air samples will be collected from the excavator operator and the operator of the portable IR equipment. These samples will be collected in accordance with the *Final SAP for Activity-Based Outdoor Air Exposures, Operable Unit 4, Libby, Montana, Superfund Site* (SRC and CDM 2007) and all approved modifications.

4.2.6 Known Areas of LA Containing Soils and/or Dust

4.2.6.1 Former Nursery Area

Two locations in the former nursery area require additional characterization as a result of previous dust and/or soil sampling actions indicate LA is present in soils and or dust: the area surrounding the former shed and the area where previous activity-based sampling efforts were completed.

Former Nursery Shed Area

Soil and dust samples collected near the former nursery shed have shown high levels of detectable LA in previous sampling events. Therefore, additional soil sampling and a visual vermiculite evaluation will be conducted in this area. One 30-point composite surface soil sample will be collected from each 100 feet by 100 feet grid in this area (Figure 4-5) and a visual estimation inspection completed for each sample aliquot.

Past Activity-Based Sampling Area

Located near the center of the former nursery area and situated around the previous sampling locations (CS-09595, CS-09672, SQ-00067, and SQ-00066) is an area where LA has been found at trace concentrations (less than 0.2 percent). This area will be divided into a 100 foot by 100 foot grid system (Figure 4-6). One 30-point composite surface soil sample will be collected from each grid and a visual estimation inspection completed for each sample aliquot.

4.2.6.2 Former Guard Station Near Libby Creek Bridge

Past dust sampling at the former guard station near the Libby Creek Bridge at the former North Gate, indicated LA was present at concentrations of 44,116 structures per square centimeter. This sample result is based on a detection of one structure of LA; the elevated analytical result is due to a high analytical sensitivity for this sample, which is equal to the sample result. The guard station has been demolished since sample collection. To determine if LA is present in soils near the location of the former guard station, one 30-point composite surface soil sample will be collected from a 100 by 100 foot grid around the location of the former guard station. Visual estimation for the presence of vermiculite will also be conducted in this area for each sample aliquot. Figure 4-7 indicates the location of the former guard station.

4.2.6.3 Diesel Pump House

Dust samples previously collected in this building indicated LA was present at a concentration of 8,832 structures per square centimeter. To determine if LA is present in soils near the pump house, one 30-point composite surface soil sample will be collected from a 100 by 100 foot grid centered on the location of pump house. Visual estimation for the presence of vermiculite will also be conducted in this area for each

sample aliquot. Figure 4-6 indicates the location of the diesel pump house.

4.2.6.4 Soil Sample Location CS-09294

The location of soil sample CS-09294 is in the vicinity of the area currently used by the Luck E G Post & Rail Company. Four 30-point composite surface soil samples will be collected from a 100 by 100 foot grid around the location of this former soil sample location to further evaluate and delineate LA presence in soils in this area. Visual estimation for the presence of vermiculite will also be collected for each sample aliquot in this area. Samplers may be required to adjust sample locations depending on the current locations of Luck E G inventory. Figure 4-8 indicates the location of CS-09294 and a proposed sampling grid for this area.

4.3 General Processes

This section describes the general field processes that will be used to support the sampling described in this SAP and includes references to the SWQAPP (CDM 2007b) and investigation-specific modifications to established project procedures when applicable.

4.3.1 Equipment Decontamination

Decontamination of soil sampling equipment will be conducted as described in Section 3.1.3.2 of the SWQAPP (CDM 2007b).

4.3.2 Sample Labeling and Identification

Samples will be labeled with index identification numbers supplied by field administrative staff, and will be signed out by the sampling teams (i.e., controlled). For air or dust samples one sample label will be placed on the sampling cassette. The sample identification number will also be written on the outside of the plastic bag used to hold the sampling cassette during transport. For soil samples the sample identification number will be written on the outside of both zip-top plastic bags.

Sample index identification numbers will identify the samples collected during the outdoor ambient air study by having the following format:

SL-####

Where: SL = Stimson Lumber Mill Site
= a sequential five digit number, beginning with 70000 to denote the sampling effort is being conducted in 2007

4.3.3 Field Logbooks

Field logbooks will be completed and managed as described in Section 3.2.4 of the SWQAPP (CDM 2007b). CDM SOP 4-1, Field Logbook Content and Control including project-specific modification is provided in Appendix B. Copies of all logbook entries will be provided to EPA and SRC within one week of collection. Electronic copies are suitable and will be placed in the project e-room within one week after the completion of each sampling event.

4.3.4 FSDSs

FSDSs will be completed and managed as described in Section 3.2.5 of the SWQAPP (CDM 2007b). Appendix E contains copies of the specific FSDSs that will be used to record information for samples collected during the activities described in this SAP. Copies of FSDSs will be provided to EPA and SRC within one week of collection. Electronic copies are suitable and will be placed in the project e-room within one week after the completion of each sampling event.

4.3.5 Photographic Documentation

Photographs will be collected, documented, and managed as described in Section 3.2.7 of the SWQAPP (CDM 2007b). CDM SOP 4-2, Photographic Documentation of Field Activities including project-specific modification is provided in Appendix B. Photographs will be used to document areas where outdoor activities are conducted. File names will be in the format:

OU5_date , where:

OU5 = Activity completed at OU5

Date = MM_DD_YY

4.3.6 GPS Point Collection

GPS location coordinates will be collected as described in Section 3.2.8 of the SWQAPP (CDM 2007b) and in accordance with CDM-LIBBY-09, provided in Appendix B.

4.3.7 Field Equipment Maintenance

Field equipment maintenance will be conducted and documented as described in Section 3.2.9 of the SWQAPP (CDM 2007). CDM SOP 5-1, Control of Measurement and Test Equipment, is provided in Appendix B.

4.3.8 Handling IDW

IDW will be managed as described in Section 3.2.10 of the SWQAPP (CDM 2007b). CDM SOP 2-2, Guide to Handling of IDW, including a project-specific modification is provided in Appendix B.

4.3.9 Field Sample Custody and Documentation

Field Sample Custody and documentation will follow the requirements described in Section 3.2.11 of the SWQAPP (CDM 2007b). CDM SOP 1-2, Sample Custody, including a project-specific modification is provided in Appendix B. Copies of all chain-of-custody (COCs) forms will be provided to EPA and SRC within one week of collection. Electronic copies are suitable and will be placed in the project e-room within one week after the completion of each sampling event.

4.3.10 Sample Packaging and Shipping

Sample packaging and shipping will follow the requirements described in Section 3.2.12 of the SWQAPP (CDM 2007b). CDM SOP 2-1, Packaging and Shipping of Environmental Samples, including a project-specific modification is provided in Appendix B.

4.3.11 Modification Documentation

All deviations will be documented and recording according the requirements described in Section 3.2.13 of the SWQAPP (CDM 2007b). A copy of the modification form is provided in Appendix F.

4.3.12 Field Surveillances and Audits

Field surveillances and audits will be conducted according to the requirements described in Section 3.2.14 of the SWQAPP (CDM 2007b).

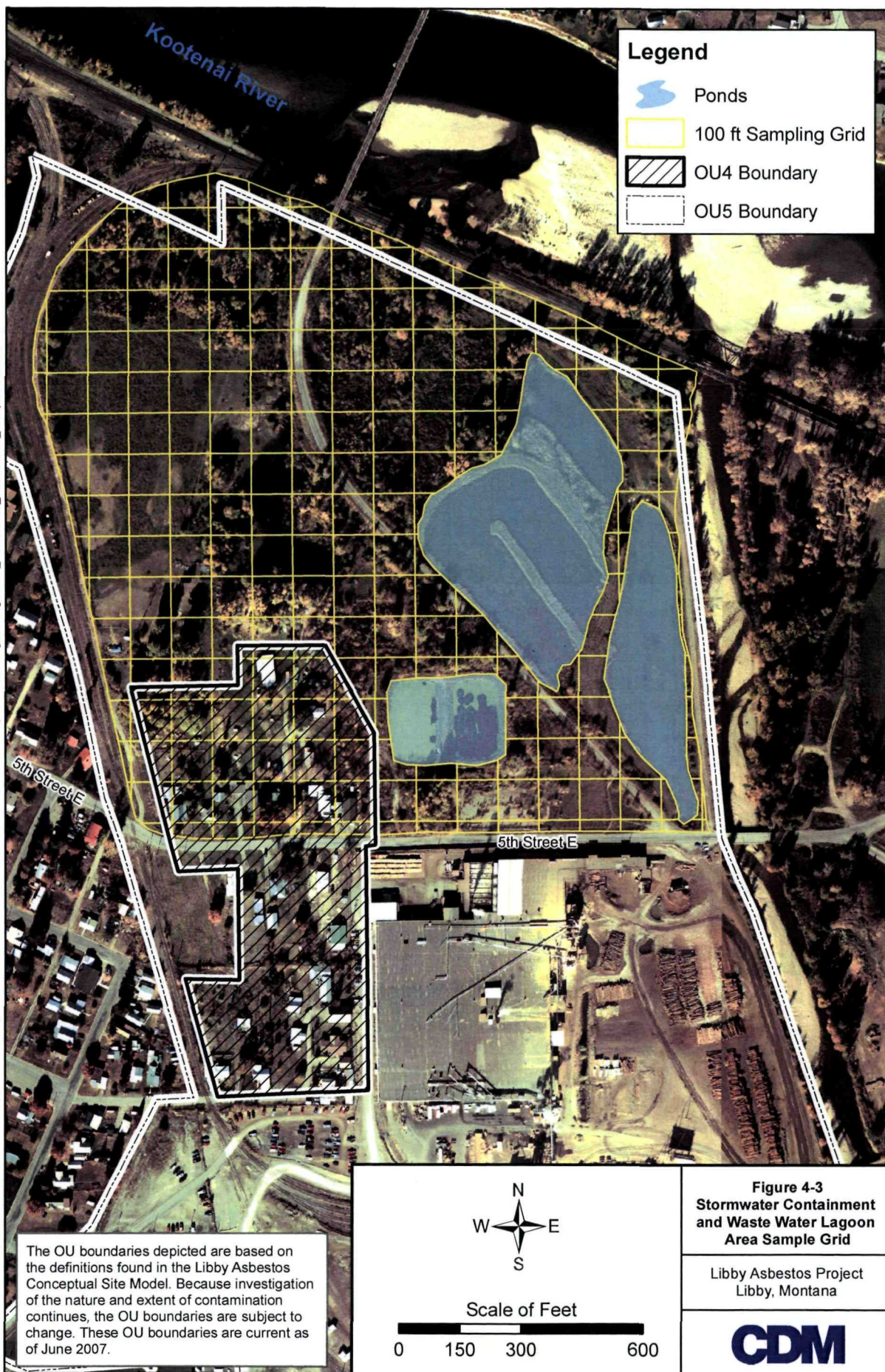
4.4 Quality Assurance /Quality Control (QA/QC) Activities

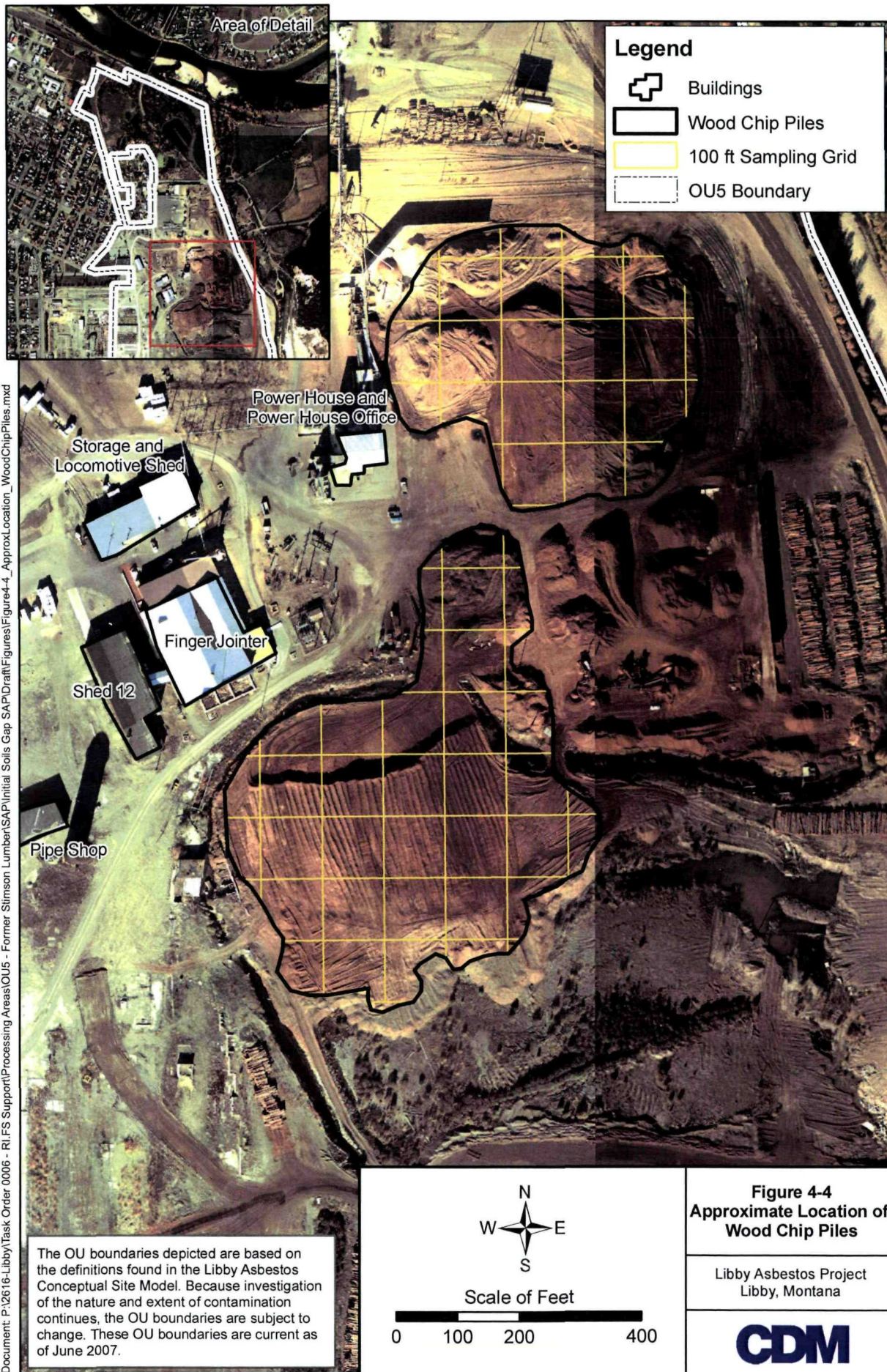
The QA/ QC actions required for each process described in this SAP will follow the requirements described in the SWQAPP (CDM 2007b).

Table 4-2 summarizes the collection frequency for QA samples and indicates corrective actions that may be required based on their results.









Document: P:\2616-Libby\Task Order 0006 - RI FS Support\Processing Areas\OU5 - Former Stimson Lumber\SAP\Initial Soils Gap SAP\Draft\Figures\Figure4-5_FomerNursery_ShedAreaWGrids.mxd







The OU boundaries depicted are based on the definitions found in the Libby Asbestos Conceptual Site Model. Because investigation of the nature and extent of contamination continues, the OU boundaries are subject to change. These OU boundaries are current as of June 2007.



Scale of Feet

0 37.5 75 150

Figure 4-7
Location of Former
North Guard Station

Libby Asbestos Project
Libby, Montana

CDM



Legend

-  Buildings
-  Soil Sample CS-09294
-  100 ft Sampling Grid
-  OU5 Boundary

Document: P:\2616-Libby\Task Order 0006 - RI\FS Support\Processing Areas\OU5 - Former Slimson Lumber\SAP\Initial Soils Gap SAP\Draft\Figures\Figure4-8_SoilSample_CS-09294.mxd



The OU boundaries depicted are based on the definitions found in the Libby Asbestos Conceptual Site Model. Because investigation of the nature and extent of contamination continues, the OU boundaries are subject to change. These OU boundaries are current as of June 2007.



Scale of Feet

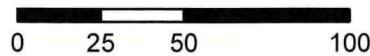


Figure 4-8
Soil Sample
Location CS-09294

Libby Asbestos Project
Libby, Montana



Table 4-1 Summary of Field QC Samples by Media

Media	Sample Type	Minimum Collection Frequency	Minimum Analysis Frequency	Acceptance Criteria	Acceptance Criteria Failure Action
Soil	Field Duplicate	1 per 20 samples	100%	<30% RPD	Evaluation of sample collection techniques

Notes: QC - quality control; ND - nondetect; RPD - relative percent difference; COC - chain of custody

Table 4-2. OU5 Soil Sampling Summary

Location Description	Soil Sample Collection Frequency	Point Inspection Frequency	Figure Reference
Libby Groundwater Superfund Site	1 per 100 x 100 foot grid- surface	1 per 100 x 100 foot grid	Figure 4-1
	1 per 100 x 100 foot grid- subsurface (18 to 24 inches below ground surface) in LTU 1, LTU 2, and expanded land farm	1 per 100 x 100 foot grid	
Waste Bark Piles	XRD reading, 3 per test pit, Pile #1 one test pit, Pile #2 one test pit, Pile #3 one test pit per 100 x 100 foot grid	N/A	Figure 4-2
Former Nursery Shed Area	1 per 100 x 100 foot grid	Each sample aliquot	Figure 4-5
Former Nursery Area - Former Activity-Based Sampling Area	1 per 100 x 100 foot grid	Each sample aliquot	Figure 4-6
Banks of Libby Creek	1 per 400 linear feet each side of creek	Each sample aliquot	N/A
Storm Water Containment and Waste Water Lagoon Area	1 per 100 x 100 foot grid	1 per 100 x 100 foot grid	Figure 4-3
Wood Chip Piles	IR reading, 3 per test pit, One test pit per 100 x 100 foot grid	N/A	Figure 4-4
Former Guard Station Near Libby Creek Bridge	1 in a 100 x 100 foot grid surrounding former location	Each sample aliquot	Figure 4-7
Diesel Pump House	1 in a 100 x 100 foot grid surrounding current location	Each sample aliquot	Figure 4-6
Soil Sample Location CS-09294	1 per 100 x 100 foot grid	Each sample aliquot	Figure 4-8

Section 5

Laboratory Analysis and Requirements

The laboratories used for all sample analysis will have participated in, and acceptably analyzed, the required parameters in the last two proficiency examinations from the National Institute of Standards and Technology/National Voluntary Laboratory Accreditation Program. The laboratory must also analyze project specific performance evaluation samples or other reference materials when requested. These analyses must be performed before any samples are submitted to the laboratory to confirm the laboratory's capabilities and may be subsequently submitted at regular intervals. In addition, the laboratory must participate in the laboratory training program developed by the Libby laboratory team.

5.1 Analytical Methods

This section describes the analytical methods that will be used to analyze samples collected to support this SAP Addendum.

All soil samples collected as part of this effort will be analyzed for asbestos by PLM-VE in accord with SOPs SRC-LIBBY-01, Revision 2 and SRC-LIBBY-03, Revision 2.

All air samples collected as part of this effort will be submitted to a subcontracted laboratory for analysis using the International Organization for Standardization (ISO) TEM method 10312, also known as ISO 10312:1995(E) (CDM 2003), with all applicable project specific modifications, including LB-000016, LB-000019, LB-000028, LB-000029, LB-000029a, LB-000030, LB-000053, and LB-000066a (CDM 2003b). All asbestos structures (including not only LA but all other asbestos types as well) that have appropriate diffraction patterns and EDS spectra, and having length greater than or equal to 0.5 μm and an aspect ratio $\geq 3:1$, will be recorded on the Libby site-specific laboratory data sheets and electronic deliverables.

5.2 Analytical Sensitivity

The target analytical sensitivity for all air samples is 0.001 s/cc. All air field blanks collected as part of this program will be analyzed by counting a number of grid opens that is approximately equal to the number of grid openings that are analyzed for field samples. It is expected that this will be about 30 grid openings. Rational for this sensitivity is provided in Section 3 of the Outdoor ABS SAP (SRC and CDM 2007a).

5.3 Holding Times

No preservation requirements or holding times are established for soil samples collected for asbestos analysis.

5.4 Laboratory Custody Procedures and Documentation

Laboratory custody procedures and documentation will be completed as required by the specifications detailed in Section 4.5 of the SWQAPP (CDM 2007b).

5.5 Documentation and Records

Laboratory documentation and records will be completed as required by the specifications detailed in Section 4.7 of the SWQAPP (CDM 2007b).

5.6 Data Management

Sample results data will be delivered to the Volpe Center and CDM's Cambridge office both in hard copy and as an electronic data deliverable (EDD) in the most recent project-specific format. Electronic copies of all project deliverables, including graphics, will be filed by project number. Electronic files will be routinely backed up and archived according to individual laboratory processes.

All results, field data sheet information, and survey forms will be maintained in the Libby project database managed by the Volpe Center under the oversight of the Volpe Center database management team.

Section 6

Assessment and Oversight

Assessments and oversight reports to management are necessary to ensure that procedures are followed as required and that deviations from procedures are documented. These reports also serve to keep management current on field activities. Assessment, oversight reports, and response actions are discussed below.

6.1 Assessments

Performance assessments are quantitative checks on the quality of a measurement system and are appropriate to analytical work. Performance assessments for the laboratories may be accomplished by submitting blind reference material (performance evaluation samples). These assessment samples are samples with known concentrations that are submitted to the laboratories without identifying them as such to the laboratories. Laboratory audits may be conducted upon request from the EPA remedial project manager (RPM) or Volpe Center project manager (PM).

Performance samples will be submitted to each laboratory analyzing samples associated with this investigation. The submission frequency is not defined, but may be once every three months.

System assessments are qualitative reviews of different aspects of project work to check on the use of appropriate QC measures and the functioning of the QA system. Project assessments will be performed under the direction of the QA managers, who report directly to the CDM president. Quality Procedure 6.2, as defined in the CDM QA Manual (CDM 2005), defines CDM's corporate assessments, procedures, and requirements. Due to the amount of sampling and the duration of the Libby project, both a field audit and an office audit are scheduled for the Site annually.

6.2 Response Actions

Response actions will be implemented on a case-by-case basis to correct quality problems. Minor response actions taken in the field to immediately correct a quality problem will be documented in the applicable field logbook and a verbal report will be provided to the CDM PM. For verbal reports, the CDM PM will complete a communication log to document the response actions were relayed to him/her. Major response actions taken in the field will be approved by the CDM PM, the EPA RPM, and Volpe PM prior to implementation of the change. Major response actions are those that may affect the quality or objective of the investigation. Quality problems that cannot be corrected quickly through routine procedures may require implementation of a corrective action request (CAR) form.

All formal response actions will be submitted to either CDM's QA manager and/or project QA coordinator for review and issuance. CDM's PM or local QA coordinator will notify the QA manager when quality problems arise that may require a formal response action. CAR forms will be completed according to Quality Procedure 8.1 of

the CDM QA Manual (CDM 2005d).

In addition, when modifications to this specific SAP are required, either for field or laboratory activities, a Libby Asbestos Project Record of Modification Form (Appendix F) must be completed.

6.3 Reports to Management

QA reports will be provided to management for routine audits and whenever quality problems are encountered. Field staff will note any quality problems on field data sheets, or in field logbooks. CDM's PM will inform the project QA coordinator upon encountering quality issues that cannot be immediately corrected. Weekly reports and change request forms are not required for this work assignment.

Section 7

Data Validation and Usability

Laboratory results will be reviewed for compliance with project objectives. Data validation and evaluation are discussed in Sections 7.1 and 7.2, respectively.

7.1 Data Review, Validation, and Verification Requirements

Data review, validation, and verification will be performed for important investigative samples as described in the SWQAPP (CDM 2007b). Data validation, review, and verifications must be performed on sample results before distribution to the public for review. Requirements for the frequency of data review are initially set at 10%. This initial rate may be revised as initial samples are analyzed and results evaluated.

Data validation consists of examining the sample data package(s) against pre-determined standardized requirements. The validator may examine, as appropriate, the reported results, QC summaries, case narratives, COC information, raw data, initial and continuing instrument calibration, and other reported information to determine the accuracy and completeness of the data package. During this process, the validator will verify that the analytical methodologies were followed and QC requirements were met. The validator may recalculate selected analytical results to verify the accuracy of the reported information. Analytical results will then be qualified as necessary.

Data verification includes checking that results have been transferred correctly from laboratory data printouts to the laboratory report and to the EDD. Data verification for this project is primarily performed as a function of built-in quality control checks in the Libby project database when data is uploaded. However, the sample coordinator will notify the laboratories and the project database manager (Mr. Mark Raney, Volpe Center) of any discrepancies found during data usage.

7.2 Reconciliation with Data Quality Objectives

Once data has been generated, CDM evaluates data to determine if DQOs were achieved. This achievement will be discussed in the measurement report, including the data and any deviations to this SAP. Sample data will be maintained in the project database (Libby2). Laboratory QC sample data will be stored in hard copy (in the project files) and in Libby2.

Section 8

References

CDM. 2003. Final Sampling and Analysis Plan, Remedial Investigation, Libby Asbestos Site, Operable Unit 4. May 16.

_____. 2005. Quality Assurance Manual. July 7.

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_____. 2007a. Initial Soils Data Gap Analysis, Former Stimson Limber Mill, Operable Unit 5.

_____. 2007b. Site-Wide Quality Assurance Project Plan. Final date pending EPA review.

_____. 2007c. Draft Final Data Summary Report, Operable Unit 5, Libby Asbestos Site, Libby, Montana. August 21.

EPA. 2001. EPA Requirements for Quality Assurance Project Plans, QA/R-5. Final. March.

_____. 2006. Guidance on Systematic Planning Using the Data Quality Objective Process, QA/G-4. February.

Appendices will be provided in the final version of this document.